

CLAIMS

1. A curable composition for a transparent material
which comprises a vinyl polymer (I) the main chain of which
5 is the product of living radical polymerization and which
contains at least one crosslinkable silyl group, and an
antioxidant (II).

2. The curable composition according to Claim 1
10 wherein the transparent material is a material for
building and construction, a material for civil engineering, a
material for transport or a material for automobile.

3. The curable composition according to Claim 1 or 2
15 wherein the transparent material is glass, a
polycarbonate or a (meth)acrylic resin.

4. The curable composition according to any one of Claims
20 1 to 3
wherein the transparent material has a layer having
photocatalytic activity-due antistaining properties as
provided on the surface thereof.

5. The curable composition according to Claim 4
25 wherein the surface layer having photocatalytic
activity-due antistaining properties is a layer comprising a
material having photocatalytic activity and, further, a
hydrophilic material.

6. The curable composition according to any one of Claims
30 1 to 5
wherein the antioxidant (II) is a hindered phenol
compound.

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7. The curable composition according to any one of Claims
1 to 6

which further comprises a plasticizer (III).

5 8. The curable composition according to Claim 7
wherein the plasticizer (III) is a phthalic ester.

9. The curable composition according to Claim 7
wherein the plasticizer (III) is a polyoxyalkylene
10 polymer.

10. The curable composition any one of Claims 1 to 9
wherein the vinyl polymer (I) has a molecular weight
distribution of less than 1.8.

15 11. The curable composition according to any one of Claims
1 to 10

wherein a vinyl monomer constituting the main chain of
the vinyl polymer (I) is mainly selected from the group
20 consisting of (meth)acrylic monomers, acrylonitrile monomers,
aromatic vinyl monomers, fluorine-containing vinyl monomers
and silicon-containing vinyl monomers.

12. The curable composition according to any one of Claims
25 1 to 11

wherein the main chain of the vinyl polymer (I) is a
(meth)acrylic polymer.

13. The curable composition according to any one of Claims
30 1 to 12

wherein the main chain of the vinyl polymer (I) is an
acrylic polymer.

14. The curable composition according to Claim 13
35 wherein the main chain of the vinyl polymer (I) is an

acrylic ester polymer.

15. The curable composition according to any one of Claims 1 to 14

5 wherein the living radical polymerization for producing the main chain of the vinyl polymer (I) is the atom transfer radical polymerization.

16. The curable composition according to Claim 15
10 wherein a transition metal complex used as the catalyst in the atom transfer radical polymerization is one composed of a VII, VIII, IX, X, or XI group element in the periodic table as a central metal.

17. The curable composition according to Claim 16
15 wherein the metal complex used as the catalyst is a complex composed of copper, nickel, ruthenium or iron as a central metal.

18. The curable composition according to Claim 17
20 wherein the metal complex used as the catalyst is a complex of copper.

19. The curable composition according to any one of Claims 1 to 18
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wherein the crosslinkable silyl group of the vinyl polymer (I) is represented by the following general formula 1:

$$-[\text{Si}(\text{R}^{10})_{2-b}(\text{Y})_b\text{O}]_1-\text{Si}(\text{R}^{11})_{3-a}(\text{Y})_a \quad (1)$$
 {wherein, R^{10} and R^{11} are the same or different and each is an
 30 alkyl group containing 1 to 20 carbon atoms, an aryl group containing 6 to 20 carbon atoms, an aralkyl group containing 7 to 20 carbon atoms or a triorganosiloxy group represented by $(\text{R}')_3\text{SiO}-$ (in which R' represents a univalent hydrocarbon group containing 1 to 20 carbon atoms and the three R' groups may be
 35 the same or different) and, when there are two or more R^{10} or

R¹¹ groups, they may be the same or different; Y represents a hydroxyl group or a hydrolyzable group and, when there are two or more Y groups, they may be the same or different; a represents 1, 2 or 3, b represents 0, 1 or 2, and l represents an integer of 0 to 19, provided that the relation $a + lb \geq 1$ should be satisfied.)

20. The curable composition according to any one of Claims 1 to 19

10 wherein the crosslinkable silyl group of the vinyl polymer (I) is at the terminus of the main chain.

21. The curable composition according to any one of Claims 1 to 20

15 which further comprises a polyoxyalkylene polymer (IV) containing at least one crosslinkable silyl group in an amount within the range of 0.1 to 1,000 parts by weight per 100 parts by weight of the vinyl polymer (I).

20 22. The curable composition according to any one of Claims 1 to 21

 which further comprises a polymer (V) containing a crosslinkable silyl group as obtained by a radical polymerization technique other than living radical
25 polymerization in an amount within the range of 3 to 300 parts by weight per 100 parts by weight of the vinyl polymer (I).

23. The curable composition according to any one of Claims 1 to 22

30 which further comprises 0.1 to 20 parts by weight of a tin curing catalyst (VI) per 100 parts by weight of the vinyl polymer (I).

24. An adhesive

35 which is produced by using the curable composition

according to any one of Claims 1 to 23.

25. A sealing material

which is produced by using the curable composition
5 according to any one of Claims 1 to 23.

26. A liquid gasket

which is produced by using the curable composition
according to any one of Claims 1 to 23.

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